

In The Claims

This listing of claims will replace all prior versions and listings of claims in this application.

1. (currently amended) A method of making a localized mutation in a plant cell to a target an ALS gene having a known sequence causing a desired trait in the plant cell to be herbicide resistant comprising the steps of:

(a) adhering to a particle a recombinagenic oligonucleobase, which contains a first homologous region which has a sequence identical to the sequence of at least 6 base pairs of a first fragment of the target ALS gene and a second homologous region which has a sequence identical to the sequence of at least 6 base pairs of a second fragment of the target ALS gene, and an intervening region which contains at least 1 nucleobase heterologous to the target ALS gene, which intervening region connects the first homologous region and the second homologous region;

(b) introducing the particle into a cell of a population of plant cells;

(c) identifying a cell of the population of plant cells having a mutation located between the first and second fragments of the target ALS gene.

2. (previously amended) The method of claim 1, wherein the recombinagenic oligonucleobase is a mixed duplex oligonucleotide (MDON) and each of the homologous regions contains an RNA segment of at least 6 RNA-type nucleotides.

3. (original) The method of claim 2, wherein the intervening region is at least 3 nucleotides in length.

4. (original) The method of claim 2, which further comprises the step of culturing the identified cell so that a plant is generated.

8. (previously amended) The method of claim 2, wherein the adhering step is performed in a solution comprising 1.1-1.4 M NaCl and 18-22 μ M spermidine and at least 14 μ g/ml mixed duplex oligonucleotide (MDON).

9. (cancel)
10. (currently amended) The method of claim 9 1, wherein the plant cell is a maize, wheat, rice or lettuce cell.
11. (currently amended) The method of claim 9 1, wherein the plant cell is a potato, tomato, canola, soybean or cotton cell.
12. (cancel)
13. (cancel)
14. (cancel)
15. (original) The method of claim 2, which further comprises making seeds from the plant or from progeny of the plant.
16. (currently amended) A method of making a localized mutation in a ~~target~~ an ALS gene in a plant cell having a cell wall ~~comprising the steps of: plant cell to a target gene having a known sequence causing a desired trait in the plant cell having a cell wall~~ comprising the steps of:
- (a) perforating the cell walls of a population of plant cells;
 - (b) introducing a recombinagenic oligonucleobase, which contains a first homologous region which has a sequence identical to the sequence of at least 6 base pairs of a first fragment of the ~~target~~ ALS gene and a second homologous region which has a sequence identical to the sequence of at least 6 base pairs of a second fragment of the ~~target~~ ALS gene, and an intervening region which contains at least 1 nucleobase heterologous to the ~~target~~ ALS gene, which intervening region connects the first homologous region and the second homologous region;
 - (c) identifying a cell of the population of plant cells having a mutation located between the first and second fragments of the ~~target~~ ALS gene.
17. (previously amended) The method of claim 16, wherein the recombinagenic oligonucleobase is a mixed duplex oligonucleotide (MDON) and each of the homologous regions contains an RNA segment of at least 6 rNA-Type nucleotides.

18. (original) The method of claim 17, which further comprises the step of culturing the identified cell so that a plant is generated.

19. (currently amended) The method of claim 17, wherein the sequence of the target ALS gene between the first and the second fragments differs from the sequence of the intervening region of the mixed duplex oligonucleotide (MDON) at a mismatched nucleotide and the mutation of the target ALS gene is located adjacent to the mismatched nucleotide.

20. (currently amended) The method of claim 17, wherein the ~~sequence~~ sequence of the target ALS gene between the first and the second fragments differs from the sequence of the mutator segment of the mixed duplex oligonucleotide (MDON) at a mismatched nucleotide and the mutation of the target ALS gene is located at the mismatched nucleotide.

21. (cancel)

22. (currently amended) The method of claim ~~24~~ 16, wherein the plant cell is a maize, wheat, rice or lettuce cell.

23. (currently amended) The method of claim ~~24~~ 16, wherein the plant cell is a potato, tomato, canola, soybean or cotton cell.

24. (cancel)

25. (cancel)

26. (cancel)

27. (currently amended) The method of claim ~~47~~ 16, which further comprises making seeds from the plant ~~of~~ or from progeny of the plant.